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Reference No. 51-28

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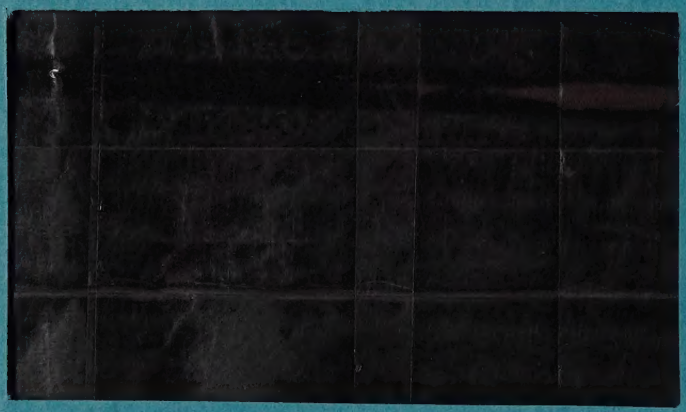
(Oceanographic Research)

conducted during the period

January 1, 1951 - March 31, 1951

WOODS HOLE, MASSACHUSETTS



WOODS HOLE OCEANOGRAPHIC INSTITUTION

Woods Hole, Massachusetts

Reference No. 51-28

OCEANIC BIOLOGY
(Oceanographic Research)

conducted during the period

January 1, 1951 - March 31, 1951

C. J. Fish, SUPERVISOR

Periodic Status Report
Submitted to Office of Naval Research
Under Contract N6ori-19501 (NR-083-003)

April 1951

APPROVED FOR DISTRIBUTION _____
Director

The Contractor shall furnish the necessary personnel and facilities for and, in accordance with any instructions issued by the Scientific Officer or his authorized representative, shall assemble and analyze all available data on the following subjects:

(a) character and distribution of zooplankton as related to features in physical and chemical oceanography and to the material resources of the sea;

(b) distribution and growth rates of reef-building corals;

(c) causes and seasonal variation of phosphorescent waters;

(d) regional distribution and biology of fouling organisms;

(e) character and prevalence of sound producing marine animals; and

(f) cooperative zooplankton collection program with the Department of the Treasury, United States Coast Guard.

This report contains a summary of work carried out under Contract N6ori-19501 (NR-083-003) during January, February, and March 1951 under the following headings:

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ABSTRACT

The analyses of the 1950 sonic fish recordings are now well advanced. Selected Audograph records have been studied with a Harmonic Wave Analyzer and the results shown in graph and chart form. Especially significant are the data on three previously unrecorded species, and an extensive series of recordings of the mating call of the toadfish, previously known only from a single specimen in Chesapeake Bay and one in Narragansett Bay. Weekly plankton collections from stations "B" and "E" now total 97 obtained on 38 cruises. With the new titles added in the last three months, the Bibliographic Card Index of Oceanography now approximates 16,000 references for the Atlantic, 1,500 for the Arctic and 13,000 for the Pacific.

SONIC FISH PROGRAM

Considerable progress has been made during the past quarter on the analyses of the 1950 sound recordings. All of the records made in the field with the portable Audograph assembly have been reviewed in order to establish the best examples of each species. The selected portions have been studied by means of the Harmonic Wave Analyzer, and their frequency and intensity characteristics indicated in graph and chart form.

Special attention was accorded the following species for which previous sound recording has not been reported:

Menticirrhus saxatilis, the kingfish, commonly known as the "voiceless" member of the croaker family;

Merluccius bilinearis, the silver hake, a near relative of the common cod family and the first of this group to be actually recorded; and

Stenotomus chrysops, the scup,

Because previous study of the mating or so-called "foghorn" call of the toadfish has been confined to one specimen in Chesapeake Bay and a single blast in Narragansett Bay in 1949, the numerous recordings made in the field between 19 June and 9 August 1950 have made possible better data on average values and extreme range of frequency for this important underwater sound.

Similar analyses with the Harmonic Wave Analyzer are under way for the Presto disc recordings which were made under experimental conditions within the Laboratory and in outdoor enclosures.

WEATHERSHIP PLANKTON PROGRAM

During the quarter ending March 31, 1951, a set of three weekly collections and records was made at Station "B" by each of the following vessels:

USCGC MACKINAC	Dec. 16 - Jan. 6
USCGC CASTLE ROCK	Jan. 6 - Jan. 27
USCGC McCULLOCH	Jan. 27 - Feb. 17
USCGC YAKUTAT	Feb. 17 - Mar. 10
USCGC COOS BAY	Mar. 10 - Mar. 31

Similar collections and records were obtained at Station "E" by the following vessels:

USCGC HUMBOLDT	Dec. 27 - Jan. 17
USCGC MENDOTA	Jan. 17 - Feb. 7
USCGC BARATARIA	Feb. 7 - Feb. 28
USCGC DUANE	Feb. 28 - Mar. 21

The recent increase in the rate of turnover of Coast Guard vessel personnel now necessitates the assignment of plankton operations at sea to individuals who have not received previous instruction. This has been reflected in a marked increase in damage and loss of apparatus parts. More such occurrences have been reported in the past quarter than during the previous nine months. Fortunately, no expensive items have been lost so far, but much more of the supervisor's time is now required to insure that repairs are made promptly and a full set of plankton equipment in good condition reaches each vessel before the sailing date. For use by officers without previous indoctrination the Manual of Instructions has been revised to cover all situations which it is believed might offer difficulties. If this is carefully read, in accordance with instructions, the difficulties experienced by operation officers in carrying out future assignments should be substantially reduced.

To date a total of 97 weekly plankton stations have been occupied on 38 cruises. Two weekly stations were omitted at Station "B" and one at Station "E" during the past quarter, presumably due to adverse weather conditions. In addition, several individual net hauls were missed owing to gear damage. Now that spares of all nets and apparatus have been provided, omissions of the latter type will be unnecessary.

Analyses of the first year's zooplankton samples and oceanographic data from Station "B" (28 February 1950 to 6 March 1951) have been completed and a Technical Report on the results is in the process of preparation.

BIBLIOGRAPHIC CARD INDEX

The Atlantic, Arctic, and Pacific Bibliographic Indexes of Oceanography are being maintained as separate units by Mary Curtis Cobb and the number of reference titles to date approximates 16,000 for the Atlantic, 1,500 for the Arctic, and 13,000 for the Pacific. 1,475 different journals are received annually by the Library of the Marine Biological Laboratory, and a weekly check is made of journals acquired, all pertinent references being added to the Index. On 25 February the Hydrographic Office requested that the Bibliographic Index be gradually duplicated by allotting the original cards (author cards) in groups of one thousand each for copying by the Navy. The first lot was shipped on 16 February.

REPORTS

In response to a request by the Hydrographic Office for a copy of Technical Report No. 5, a Dictionary of Japanese Terms used in Oceanography by Rodney S. Notomi, a limited number were prepared and distributed to the following agencies on 14 February:

Hydrographic Office	1 copy
Office of Naval Research	2 copies
Office of Naval Intelligence	1 copy
GHQ SCAP-NRS Fisheries Division	1 copy
Fish and Wildlife Service, Honolulu, T.H.	1 copy
Fisheries Division, FAO of the United Nations	1 copy
Scripps Institution of Oceanography	1 copy
Marine Biological Laboratory, Woods Hole	1 copy

PERSONNEL

Charles J. Fish,	Senior Biologist, in charge (quarter time)	16.25
Marie P. Fish,	Associate Biologist	65.00
Mary C. Cobb,	Secretary-Technician	65.00
Robert Campbell,	Biological Aid	65.00
	Temporary assistants	30.00
	Graduate student assistants (5)	148.50
	Total Man Days*	389.75

* Man Day consists of 8 working hours.

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Woods Hole Oceanographic Institution